

## Institutional Research in Europe: A view from the European Association for Institutional Research

Jeroen Huisman, professor Higher Education Governance, Department of Sociology, Ghent University, Belgium ([jeroen.huisman@ugent.be](mailto:jeroen.huisman@ugent.be)).

Peter Hoekstra, coordinator Institutional Research, Office of Strategy & Information, University of Amsterdam, the Netherlands ([j.p.hoekstra@uva.nl](mailto:j.p.hoekstra@uva.nl)).

Mantz Yorke, visiting professor, Department of Educational Research, Lancaster University, UK ([mantzyorke@mantzyorke.plus.com](mailto:mantzyorke@mantzyorke.plus.com)).

### 1 Introduction

Those familiar with the European higher education landscape and its history know that higher education is very much a national affair (see e.g. Neave, 2001), in that national governments determine to a considerable extent the policies for higher education and hence largely “steer” or give direction to institutional strategies of higher education institutions. National governments have also been increasingly keen to assess institutional performance on a range of dimensions. Neave, in consequence, has referred in this connection to the rise of the ‘evaluative state’ (Neave, 1988; 1998).

The institutions in each European system are confronted with different challenges and expectations, different stakeholders and – importantly – different levels of institutional autonomy. Estermann et al. (2011) show that there are considerable differences in institutional autonomy between European countries and also with respect to different facets of autonomy (financial, academic, organisational, staffing). Without going into the details of their scorecard method, they show that countries differ largely. For example, the UK scores 100% on organisational autonomy, whereas Luxembourg scores 31%, yet Luxembourg is ranked highest (91%) for financial autonomy and Cyprus lowest (23%). Further, the internal functioning of European higher education institutions differs widely, for instance with respect to governance structures. And, finally, the European higher education institutions differ significantly in terms of their heritage, with some institutions being almost a millennium old and others only recently established.

For sure, at a high level of abstraction, all these institutions have to some extent to tackle issues such as access, participation, retention, research performance, and their ‘third mission’ (outreach). The point is, however, that these issues are very much influenced by the particular national context. To give an example, ‘access’ will be conceptualized very differently in a higher education system that has low participation rates and a very unequal participation by social-economic background of its students, embedded in a context where there is limited institutional autonomy to develop institutional strategies than if it is embedded in a higher education system in which participation rates are high and higher education institutions strongly compete for students in a market-driven environment.

If we take these different conditions and contextual factors together, it seems very reasonable to argue that institutional research plays out in very different ways in this highly diverse European landscape. We take Terenzini's (2013) "intelligences" as a conceptual framework to illustrate these differences in more detail.

Terenzini (2013), reflecting on institutional research in the US over a span of two decades (see also his previous paper on this theme, Terenzini, 1993), argues that institutional research is "organisational intelligence" and stresses that three competencies are necessary.

- *Technical/analytical intelligence*, which boils down to the crafts of data mining and analysis, the "toolbox".
- *Issues intelligence*, which relates to understanding how higher education institutions function internally. Here he argues that institutional researchers need substantive knowledge (from the research literature) on the core issues that institutional research should focus on. As important, institutional researchers must be able to learn to play the institutional research game in collegial, bureaucratic and political settings within their higher education institutions.
- *Contextual intelligence*, which denotes a sound grasp of context and culture. What is a higher education institution and where did it come from? Regarding this, he argues for much greater sensitivity of "the world out there".

Combining these competencies with the generic role of institutional research (in shorthand: data collection for decision support) and the diversity of higher education in Europe, it is easy to see that the particular role of institutional research in European higher education institutions will differ largely. If institutional research is about decision support, it is of crucial importance to consider how much scope there actually is for making institutional strategic decisions and hence how much organisational intelligence is needed – and in which form. From the above it seems clear that painting a picture of institutional research in Europe is quite challenging and difficult to achieve within the limits of a book chapter. Our response to the challenge is based on an examination of the activities of a long-standing European organisation – the European Association for Institutional Research (EAIR). The analysis focuses on how institutional research has been interpreted in practice, and by whom. For sure, this analysis only shows a tip of the iceberg, but we prefer this focus above a sketchy and patchy description of what happens at particular institutions in particular European higher education systems. In all, it will give the reader a general insight in what institutional research in Europe entails, including its contemporary and future challenges.

We structure this chapter as follows. We first briefly describe the emergence and development of EAIR from its start in 1979. We then analyse the contributions to the Annual Forums that can be labelled as examples of institutional research, concentrating on the period 2011-13. We close down the chapter with conclusions and reflections.

## **2 Background of EAIR and its development over time**

There are two factors that account for the emergence and development of EAIR. First, within the International Activities Sub-committee of the US-based Association for Institutional Research (AIR), ideas were explored to broaden the association's geographical scope, a small AIR European Forum in Paris in 1979 being the result (Begg and Belanger, 2003). Subsequent forums were held in other European cities and through their successes a lively community of administrators, researchers and policy-makers kept interest in institutional research alive in Europe. Second, that interest got a boost in the 1980s, given changing governmental views on institutional autonomy in European higher education. From the mid-1980s, national governments granted higher education institutions more autonomy in exchange for forms of accountability (Neave and Van Vught, 1991). This required the institutions to make (more) use of their internal capacity and intelligence to generate information and data in order to satisfy the government's wish to oversee the institutions. But in many systems this institutional monitoring (Neave, 2003) went hand in hand with the internal use of this intelligence, that is, to use it in the context of the institution's strategic management. Taking the intrinsic and extrinsic motivation for institutional research together, there were clear drivers for European IR activities in the broadest sense. It is therefore not a surprise that the annual forums led to the institutionalisation of EAIR in 1989 as an independent membership organisation (see Begg and Belanger, 2003 for vivid details).

Institutional research did not exist as a profession in the early years of EAIR. Indeed, the term 'institutional research' was until recently relatively little used in Europe. So whereas in other parts of the world associations for institutional research were seen as vehicles for professional development, EAIR became "a Society for HE, linking research, policy and practice". In that way EAIR attracted a broad group of participants which had some sort of engagement with IR (even though they may not at that time have acknowledged the term), which fitted with the European tradition of exchanging ideas across differing components of higher education systems and institutions. Part of the difficulties in developing an administrative profession called IR was the existing 'firewall' between academics working in the field of academic research and academics working in the administration. Many European policy makers had the feeling that 'research' should be exclusively done in research departments and institutes, not in the administration. This 'firewall' constituted a barrier against the interaction between the two worlds of academic work and administration.

EAIR became more known as an acronym than as its expanded form, with – as noted above – the phrase 'institutional research' being relatively little used. The silver jubilee book reflecting on 25 years of EAIR (Begg, 2003) was called: *The Dialogue between Higher Education Research and Practice* – and by 'higher education research' the authors meant the academic discipline (or better: field of study). However, EAIR was not isolated from developments elsewhere in the world, for institutional researchers from North America, Australia and South Africa presented their work at EAIR Forums. IR became a kind of oscillation point, the point at which the conversation between research, policy and practice fluctuated.

In due course, IR came formally into being in some European countries. As said above, these were especially the countries where HEIs were (relatively) more autonomous (United Kingdom, the Netherlands, Germany, Scandinavia). In the Netherlands the DAIR, the Dutch Association for IR, came into being, and more recently the Higher Education Institutional Research network (HEIR) was established in the UK and Ireland.

Looking back at the developments in the past decade, two issues stand out. First, from an initiative by enthusiastic AIR members and European individuals, EAIR developed into a non-profit association with a professional secretariat/executive management and a governance structure with an Executive Committee, President and scope for members to discuss issues at the Annual General Meeting, and it launched the journal *Tertiary Education and Management* in 1995. Over the past five years, around 300 participants have attended the Annual Forum. Second, although adequately depicted as a kind of spin-off of AIR, EAIR matured in a particular European context. Whereas AIR continued to focus on institutional research as information collection, analysis and utilization related to institutional strategic management (see e.g. Peterson, 2003; Terenzini, 2013), EAIR – almost from the beginning – has been home to institutional researchers and to “traditional” discipline- and field-based higher education researchers (see e.g. Teichler, 2000, for a classification of the different types of higher education researchers). This is reflected in the participation at the Annual Forum, with roughly 40% of the attendants being academics, 40% being institutional researchers and administrators and about 20% policy-makers and representatives of professional organisations in higher education (as a side line, it is worth noting that many participants and members come from outside Europe). It is also reflected in the association’s current strategy and mission and the strapline “Linking research, policy and practice”. As such, EAIR’s activities are a reflection of higher education developments in Europe (and other parts of the world) in which both governments and higher education institutions are key players. Hence EAIR has an inclusive interest in higher education from different perspectives and stakeholders: management and other professionals within higher education institutions, academic researchers, and those involved in policy preparation and development.

### 3 Institutional research at EAIR Forums, 2008-2013

In this section we depict institutional research in Europe from the perspective of *contributions to the EAIR Forums that can be labelled as Institutional Research due to the fact that these contributions were sent in for and accepted in an EAIR Forum-track that was called IR*. In doing so, we acknowledge that in large parts of Europe IR is not recognized as a profession in the domain of the administration (as it is in other parts of the world): whilst EAIR recognises activities as IR, some participants would not label them as IR. We therefore have chosen a ‘non-imperialistic’ and pragmatic approach to our analysis that respects the self-image of the Forum participants.

#### 3.1 Who are the participants at EAIR Forums?

Table x.1 gives an overview of the backgrounds of the Forum participants over the period 2008-2013. Please note that the backgrounds are self-reported and hence there may be some ambiguity hidden in the tables: a quality manager in one institutions may qualify him/herself as “quality”, but in another institution as “management”, whereas the actual job function may be similar. Please also note the thin line that may exist between “management” and “administration”.

Academic	21 %	Lecturers, Professors, Principals,
----------	------	--

		Emeriti, PhD-students
Management*	26 %	Rectors, Deans, University Board members, Managers
Administration	37 %	Controllers, Office Manager, Administrators, Institutional Researchers
Quality	8 %	Quality assurance
Others	8 %	Economics, Business, Computing, Editors, Communication

*Table x.1: background of EAIR participants, 2008-2013*

\* A number of those categorized here as managers also had policy-making functions.

On a more restricted classification, defining an institutional researcher as “a person who is professionally working in an administrative office, analyzing institutional data on an institutional or system-level”, the percentage of institutional researchers is much lower. When we accept this definition and count only offices and departments such as the “Academic Practice Unit”, “Department of Institutional Statistics & Analysis”, “Office of Institutional Research & Evaluation” or the “Institutional Planning & Analysis Office” and job titles such as Research Officer, Analyst, Research Associate, IR Specialist etc, the percentage of Forum participants that one could define as institutional researchers is about half of the category “Administration”, that is to say, about 15-20% of all the participants.

### **3.2 Institutional research tracks at EAIR Forums**

The EAIR Forum did not have an explicitly-labelled IR track until 2005. This constituted a belated acknowledgement of the fact that many of the Forum’s contributions, hitherto not specifically labelled as institutional research, would in fact be entirely consistent with the professionalised context of institutional research in the United States. At the Riga Form of 2005 a track entitled “Institutional Research and Higher Education” was included as “the track that addressed the impact of Institutional Research – the activity that gave EAIR its name”. In the invitation to submit proposals for the Forum, EAIR stated “IR may be unknown as a concept in many European countries, but it is well known as a function. Within higher education, IR's role is to provide decision makers with essential information about their institutions and the environment in which they operate. In that

way IR supports decision makers to make informed decisions and to realize their ambitions more effectively.”

The track was highly successful in attracting papers – so many indeed that it was decided to create a double IR track. Thirty-one presenters and authors presented 18 papers and participated in a well-attended Round Table Discussion about the effectiveness of IR. In table x.2, we present the national affiliation of the presenters.

USA	7 (4)
United Kingdom	6 (4)
Latvia	4 (1)
Netherlands	3 (2)
Canada	3 (2)
Argentina	3 (1)
Finland	2 (1)
South Africa	1 (1)
Australia	1 (1)
Saudi Arabia	1 (1)

*Table x.2: national affiliation of presenters (the number of paper presentations in brackets)*

The balance of the presenters was roughly even between those from Europe and those from outside Europe (most from North America). In other aspects the track was balanced as well. About half of the authors were academics: professors, researchers or lecturers, the other half were administrators: policy officers, information analysts and institutional researchers.

The themes that were addressed were split into two groups of fairly equal size: ten presentations dealt with the methods and theory of IR itself. They offered contributions devoted to the development of the IR instruments, such as performance indicators and institutional dashboards, or pointed out new challenges and opportunities for IR in developments such as accreditation and internationalization. The other half of the presentations were case studies of practice, evidencing effectiveness in Institutional Research. The studies covered topics such as research into student satisfaction, diversity and retention and non-traditional undergraduates. Sometimes the studies had been performed at the level of the institution, sometimes at the level of a national system.

The importance of the Riga Forum for institutional research in Europe was that for the first time institutional research was made explicit as an activity meriting a track on its own – though much IR work had previously been located under different headings. Despite the considerable success of the institutional research track at Riga, it was not till 2010 that EAIR decided to introduce three fixed tracks that would have a stable position for a number of years. The three themes were: “Student

experience”, “Governance” and “Institutional Research”. Thus the three Forums in 2011, 2012 and 2013 all had an IR track. IR has thereby been given greater visibility in the association.

The institutional research tracks at these three Forums centred on different aspects of institutional research (Table x.3).

Venue	Year	Abbreviated description of track coverage
Warsaw	2011	<b>Institutional Research: Working for the academic community</b>  The track emphasises strategies for gathering, analyzing and distributing information as well as the challenges and opportunities for IR. The track offers institutional researchers, policy makers and other members of the academic community the opportunity to exchange ideas on critical information needs in HE and on strategies and resources for improving the profession of institutional research.
Stavanger	2012	<b>Institutional Research: Measuring effectiveness in higher education</b>  The track treated ‘measuring effectiveness’ sufficiently broadly to encompass measurement methodologies as well as the outcomes of measurements in respect of institutional functioning such as teaching and learning, technology transfer, and contributions to society. Particular encouragement was given to proposals that supported decision-making or contributed to a better understanding of successful practices and processes to improve higher education.
Rotterdam	2013	<b>Institutional Research: How to measure impact</b>  Proposals were sought that helped higher education institutions to understand better their overall performance or performance in specific areas such as education and research. The track covered methodologies for measurement, performance indicators and metrics, the collection and the validity of data, and the role of institutional research beyond measurement.

*Table x.3 Coverage of the institutional research track at EAIR Forums 2011-2013*

In these three years, 35 IR papers were presented by 64 authors/presenters. In terms of the national affiliation, these authors primarily came from the UK (17%), USA (16%), Germany (14%), the Netherlands (13%), Canada (9%), Norway (9%), 22% came from other countries. When submitting their paper proposals, the corresponding author could indicate to what extent the paper was academic, policy-oriented/case study of practice, or a combination of these. The papers were reasonably divided between these categories, with 37%, 37%, and 26%, respectively. Where a contribution was labelled ‘academic’, the research-based offerings were usually based on empirical data of various kinds and their analysis, as were the case studies. The ‘discursive’ and policy-oriented contributions were more conceptual in character.

In the three Forums, the keywords most cited have been as follows. For 2011, these were: higher education research design and institutional performance measures; in 2012, these were institutional performance measures, governance and assessment/evaluation; and for 2013 these were institutional performance measures and quality. There is a clear dominance of attention to performance measures, not surprising given the increasing attention of many governments (and subsequently higher education institutions) to performance indicators. The keywords suggest that there is more emphasis on ‘technical/analytical intelligence’ and ‘issues intelligence’ than there is on ‘contextual intelligence’. Against that, however, it should be noted that the keynote presentations at the Forum typically address ‘big picture’ concerns – i.e. the third of Terenzini’s ‘intelligences’. Case studies have typically been provided by academics working in administrative roles, who presented their own practices that they considered to be good examples of projects such as effective student surveys or management information methodologies.

The use by academic researchers of institutional data builds a bridge with the administration that often ‘owns’ these data, and with data analysts that do the collecting, the cleansing and analyzing. The varied participation at EAIR Forums implicitly encourages such bridge-building, and invites administrators and academics to collaborate in order to strengthen practices and to make them more theoretically informed.

### **3.3 *Institutional research in Europe contrasted with that in the United States***

Volkwein’s (1999) fourfold categorization of institutional research presented it as information authority, policy analyst, spin doctor, and scholar and researcher. Serban (2002) later added a fifth area – knowledge management – which Volkwein (2008) included in a later categorization. However, it is doubtful whether Serban’s addition is distinct enough to justify its inclusion since some senior institutional researchers might be involved in knowledge management as part of their role as set out originally by Volkwein.

Various writers from the US (e.g., Saupe, 1990; Howard, 2001) have stressed the role of the institutional research office as primarily ‘information authority,’ serving management’s needs, while fulfilling some or all of the other aspects listed by Volkwein. The existence of a specialist office for institutional research provides management with a focal point to approach for data analysis and presentation. The ‘spin doctor’ role, as reflecting what some see as ‘black arts’ is probably under-represented in public presentations and writings, simply because overt acknowledgement could undermine effective practice.

The relative lack of such a formal structure in Europe (though there are specialist units in some institutions such as the University of Amsterdam), coupled with a strong tradition of academic research, has given institutional research a different coloring. An examination of contributions to EAIR Forums for the years 2011-2013 shows an emphasis on two of Volkwein’s categories, ‘information authority’ and ‘scholar and researcher’, with the latter tending to dominate. Titles of some recent presentations give a flavor of the kinds of contributions that have been made.

#### **IR as Information Authority**



- “Be Informed”, a management information system at the University of Maastricht : a case study.
- Strategic portfolio management in higher education - A practical case from the University of Stavanger.
- Decision support for the academia at Uppsala University.
- Assessing the outcomes and impact of doctoral programs: Two institutional approaches
- Data warehouse sharing and the changing role of institutional research

These five examples, which are not untypical, have a methodological cast: how to improve, or to build, or to implement systems and procedures, and ‘tools’ that can be used for decision support. They describe case studies and lessons learned. Other than as Volkwein (2008, p.18) describes, in these presentations it is not the institutional researcher educating the campus community in terms of data on different aspects of the institution: instead, it is the institutional researcher creating the *conditions* to do so. This may reflect the EAIR context: maybe the ‘educating’ part is not regarded as interesting enough for an international audience at a conference. And, as stated before: the ‘spin doctor’ role also is probably more important than is visible in these public presentations. Worth noticing is the introduction of the concept of Business Intelligence (BI) in some of the presentations as more or less an equivalent of IR.

#### IR as Scholar and Researcher

In Volkwein’s (2008) ‘Five Faces of Institutional Research’ there are, next to the two administrative roles mentioned above, also descriptions of ‘faces’ of institutional researchers who inhabit the explicitly academic role and culture of scholars and researchers. These academic roles are clearly apparent in the presentations in the recent IR tracks. They can be categorized as ‘Reflections on sources and methods’, ‘Presentations of outcomes of academic, empirical research’ and ‘General academic, theoretical or discursive, considerations’.

##### *(a) Reflections on sources and methods*

- ‘Good enough?’ Some practical considerations relating to the analysis of existing datasets
- Using productivity measures to provide feedback to academic and research programs
- Retention and withdrawal: using longitudinal, multiple-source data to inform institutional policy

Two of these presentations are specific considerations and one is a case study. All three have an explicit connection with the IR tradition in the sense that they look for practical relevance for the presenters’ own institutions as well as for the audience at the Forum.

*(b) Academic, empirical research*

- The utility of assessments as predictors of study success in master programs
- The estimation of peer effects for research productivity in higher education
- Identifying, characterizing and assessing new practices in doctoral education
- The impact of pre-entry English test results on postgraduate success

The titles in this group indicate that these presentations are more ‘classical’ – scholarly, yet professionally oriented. In these presentations specific research questions have been asked (e.g. ‘Which factors determine ...?’), and considerable attention is paid to methods and statistics. Conclusions are drawn ‘that might be relevant for researchers as well as policy makers’. The presenters in this group seem to lean more on the tradition of higher education research, whilst keeping an eye on the relevance to IR.

*(c) Academic, theoretical or discursive*

- New nails in the coffin of standardized tests as comparators of institutional quality
- Knowledge structures and patterns of external engagement
- On the causality of external quality assurance in higher education institutions

The presentations in this last group of ‘scholars/researchers’ tend to be more conceptual considerations and reflections, that ‘raise a number of interesting questions’, point to theoretical divisions or classifications that are open for debate, or give intimations of forthcoming analyses. They all seem to engage in one way or another on broad issues that go beyond the interests of particular institutions.

## **4 Conclusions and reflections**

The rise of the ‘evaluative state’ (Neave, 1988, 1998) has encouraged European institutions to look at their internal functioning and at their performances as seen by the outside world, and so institutional research has grown in visibility.

However, much that nowadays is labeled as ‘institutional research’ was already being undertaken under different names and in units such as academic planning offices. European institutions have really been practicing institutional research without realizing it. The situation calls to mind Monsieur Jourdain in ‘*Le bourgeois gentilhomme*’ who is surprised and delighted to discover that he has been speaking prose all his life without realizing it – however, the difference is that IR practitioners are not so pretentious and self-deceiving as the aspirant social climber Jourdain. The same may be true of other parts of the world, where IR-type activities are not labeled as such.

What EAIR has done is to provide a focus for a range of professional activities that can be subsumed by 'institutional research', even though IR as such does not have a strong profile (this may account, in part, for the attraction of contributions from around the globe). Concepts such as institutional effectiveness, faculty development, enrolment management and knowledge management are still relatively new in many countries and institutions and not been brought together in a coherent way, such as under the banner of IR. The term 'institutional research' has been increasingly used in EAIR Forum keynotes and tracks: it is becoming a term that is widely understood, even if it often lacks structural representation in institutions.

A major difference from the position in the United States is that institutional research has not developed as a profession, with all that implies for professional and career development. This may be because national systems in Europe are smaller and more diverse, making commonality more difficult to achieve, and because those whose work encompasses institutional research can be found in a variety of positions, with only a minority seeing themselves as IR professionals.

The diversity of Forum participants indicates that all three of Terenzini's (1993, 2013) 'intelligences' can be found in European IR, though participants vary considerably in the particular 'intelligence(s)' they bring to the fore. However, the analysis of the keywords relating to recent Forum presentations suggests that 'contextual intelligence' is the least prominent of the three. Taking Volkwein's (1999) slant on institutional research, European institutional research is currently represented strongly by scholars and researchers, and to a lesser extent by information authorities. In the earlier days of EAIR academic management practices were more evident in Forums, and the Association's Journal *Tertiary Education and Management* has over the years evolved more towards an academic publication from a publication that was happy to include descriptive accounts of actual practices.

One of the strengths of EAIR has been its ability to bring together academics, administrators and policy makers to hear about, and discuss, research and practices in a wide variety of contexts. Academics and administrators roles are increasingly overlapping as institutions seek to deal with the implications of the 'evaluative state'. The edging towards a greater 'academicization' of the Association does however create a challenge to this 'ecumenical' heritage. Dealing with this challenge is something which EAIR will need to address in the years ahead.

In the financially troubled post-crash years, attendance at EAIR's Forums has held up well – indeed, its recent Forums have proved highly attractive. EAIR is satisfying a need for professional exchange regarding institutional research, which indicates the significance that institutional research has for contemporary – and future – higher education.

## References

Begg, R. (Ed.), *The dialogue between higher education research and practice*. Dordrecht: Kluwer Academic Publishers.

Begg, R. & Belanger, C. (2003), EAIR in the making, in: R. Begg (Ed.), *The dialogue between higher education research and practice*. Dordrecht: Kluwer Academic Publishers, 15-30.

- Estermann, T., Nokkala, T. & Steinel, M. (2011), *University autonomy in Europe II. The scorecard*. Brussels: European Association of Universities.
- Howard, R.D. (2001) Foreword in R.D. Howard (Ed.) *Institutional Research: Decision Support in Higher Education*. Tallahassee: Association for Institutional Research, v-vii.
- Neave, G. (1988). On the Cultivation of Quality, Efficiency and Enterprise: an overview of recent trends in higher education in Western Europe, 1986-1988. *European Journal of Education* 23(1/2), 7-23.
- Neave, G. (1998). The Evaluative State Reconsidered. *European Journal of Education* 33(3), 265-284.
- Neave, G. (2001). The European dimension in higher education: An excursion into the modern use of historical analogues, in J. Huisman, P. Maassen & G. Neave (Eds.), *Higher education and the nation state. The international dimension of higher education*. Amsterdam/Londen etc.: Pergamon, 13-73.
- Neave, G. (2003), Institutional research: From case study to strategic instrument, in: R. Begg (ed. 2003), *The dialogue between higher education research and practice*. Dordrecht: Kluwer Academic Publishers, 3-14.
- Neave, G., & Van Vught, F. A. (Eds.). (1991). *Prometheus bound. The changing relationship between government and higher education in Western Europe*. Oxford: Pergamon.
- Peterson, M. (2003), Institutional research and management in the U.S. and Europe: Some EAIR-AIR comparisons, in: R. Begg (Ed.), *The dialogue between higher education research and practice*. Dordrecht: Kluwer Academic Publishers, 31-44.
- Saupe, J.L. (1990) *The functions of institutional research*. Tallahassee: Association for Institutional Research.
- Serban, A.M. (2002) Knowledge management: the fifth face of institutional research. In A.M. Serban and J. Luan (Eds.) *Knowledge management: building a competitive advantage in higher education [New Directions for Institutional Research, No. 113]*. San Francisco, CA: Jossey-Bass, 105-11.
- Teichler, U. (2000). Higher education research and its institutional basis. In S. Schwarz & U. Teichler (Eds.), *The institutional basis of higher education research. Experiences and perspectives* (pp. 13-24). Dordrecht: Kluwer.
- Terenzini, P.T. (1993) On the nature of institutional research and the knowledge and skills it requires. *Research in Higher Education* 34 (1), 1-10.
- Terenzini, P.T. (2013), "On the nature of institutional research" revisited: Plus ça change ...? *Research in Higher Education* 54, 137-148.
- Volkwein, J. F. (1999), The four faces of institutional research. In J. F. Volkwein (ed.), What is institutional research all about? A critical and comprehensive assessment of the profession. *New Directions for Institutional Research* 104, 9-19.

Volkwein, J.F. (2008) The foundations and evolution of institutional research. In D.G. Terkla (Ed.) *Institutional research: more than just data [New Directions for Higher Education, No.141]*. San Francisco, CA: Jossey-Bass, 5-20.